Auto date/time guidance in Power BI Desktop

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This article targets data modelers developing Import or Composite models in Power BI Desktop. It provides guidance, recommendations, and considerations when using Power BI Desktop *Auto date/time* in specific situations. For an overview and general introduction to *Auto date/time*, see Auto date/time in Power BI Desktop.

The *Auto date/time* option delivers convenient, fast, and easy-to-use time intelligence. Reports authors can work with time intelligence when filtering, grouping, and drilling down through calendar time periods.

Considerations

The following bulleted list describes considerations—and possible limitations—related to the *Auto date/time* option.

- **Applies to all or none:** When the *Auto date/time* option is enabled, it applies to all date columns in Import tables that aren't the "many" side of a relationship. It can't be selectively enabled or disabled on a column-by-column basis.
- **Calendar periods only:** The year and quarter columns relate to calendar periods. It means that the year begins on January 1 and finishes on December 31. There's no ability to customize the year commencement (or completion) date.
- **Customization:** It's not possible to customize the values used to describe time periods. Further, it's not possible to add additional columns to describe other time periods, for example, weeks.
- **Year filtering:** The **Quarter**, **Month**, and **Day** column values don't include the year value. For example, the **Month** column contains the month names only (that is, January, February, etc.). The values are not fully self-describing, and in some report designs may not communicate the year filter context.

  That's why it's important that filters or grouping must take place on the **Year** column. When drilling down by using the hierarchy year will be filtered, unless the **Year** level is intentionally removed. If there's no filter or group by year, a grouping by month, for example, would summarize values across all years for that month.

- **Single table date filtering:** Because each date column produces its own (hidden) auto date/time table, it's not possible to apply a time filter to one table and have it propagate to multiple model tables. Filtering in this way is a common modeling requirement when reporting on multiple subjects (fact-type tables) like sales and sales budget. When using auto date/time, the report author will need to apply filters to each different date column.

- **Model size:** For each date column that generates a hidden auto date/time table, it will result in an increased model size and also extend the data refresh time.

- **Other reporting tools:** It isn't possible to work with auto date/time tables when:
  - Using Analyze in Excel.
  - Using Power BI paginated report Analysis Services query designers.
  - Connecting to the model using non-Power BI report designers.

Recommendations

We recommended that you keep the *Auto date/time* option enabled only when you work with calendar time periods, and when you have simplistic model requirements in relation to time. Using this option can also be convenient when creating ad hoc models or performing data exploration or profiling.

When your data source already defines a date dimension table, this table should be used to consistently define time within your organization. It will certainly be the case if your data source is a data warehouse. Otherwise, you can generate date tables in your model by using the DAX CALENDAR or CALENDARAUTO functions. You can then add calculated columns to support the known time filtering and grouping requirements. This design approach may allow you to create a single date table that propagates to all fact-type tables, possibly resulting a single table to apply time filters. For further information on creating date tables, read the Set and use date tables in Power BI Desktop article.

> **Tip**
>
> For more information about creating calculated tables, including an example of how to create a date table, work through the **Add calculated tables and columns to Power BI Desktop models** learning module.

If the *Auto date/time* option isn't relevant to your projects, we recommend that you disable the global *Auto date/time* option. It will ensure that all new Power BI Desktop files you create won't enable the *Auto date/time* option.

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You have a fact table that contains sales data.

The fact table includes a SalesDate column formatted as a Date data type. Auto date/time setting is disabled in both global and current file options.

You load the fact table into Power BI Desktop.

You need to ensure that you are able to analyze data on a yearly, quarterly, monthly, weekly, and daily basis. Your solution must minimize the model size and administrative effort.

What should you do?

- ◯ Add a separate date dimension table.

  ✓This answer is correct.
- ◯ Add a year, month, and week columns to the fact table.
- ◯ Enable the Auto date/time current file option.
- ◯ Enable the Auto date/time global option.

Adding a separate date dimension table that includes year, month, and week information is the optimal approach which provides the required functionality, while minimizing the model size and administrative effort. Adding a year, month, and week columns to the fact table would increase the amount of administrative effort. Enabling the Auto date/time global or current file option would increase the model size. In addition, it would not provide the ability to describe weekly time periods (only year, quarter, month, and day).

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You need to prevent hidden date tables from being auto generated by Power BI Desktop for every date or datetime data type column in a dataset.

What two tasks should you perform? Each correct answer presents a complete solution

- [x] Enable Mark as date table for the Calendar table.

✓This answer is correct.

- [x] From the Current File options in Power BI Desktop, disable Auto Date/Time

✓This answer is correct.

- [ ] From the Global options in Power BI Desktop, disable Auto Date/Time for new files.
- [ ] Set the Data Category to None for all Date and DateTime fields.

Disabling Auto Date/Time for new files from the Current File options will disable all Auto Date/Time tables in this dataset. Enabling Mark as date table for the Calendar table will also disable the auto datetime tables in the dataset. Disabling the Global option Auto Date/Time for new files means that new files will no longer have Auto Date/Time enabled, but the file containing the current dataset will still have it enabled until it is disabled. Changing the data category will not impact the auto date table feature.

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